

CHAPTER 10

WILD ANIMALS IN CAPTIVITY

Man's first efforts to keep wild animals in captivity date back to prehistoric times, and for many reasons humans are attracted to non-human animals.

The animals people expect to see in zoos are those they have learned about in books as children, and those seen in television specials. People will usually stop, at least momentarily, for

1. animals that beg
2. animals that are feeding
3. baby animals
4. animals that make sounds
5. animals that are mimicking human behaviour, or playing

They pay little or no attention to nesting, sleeping or hiding animals (Ludwig, 1981). Many people dislike zoos and many people enjoy them. Yearly, more than 100 million Americans visit zoos and people are fascinated by wildlife in captivity (Eaton, 1981).

In the past, some zoos paid little attention to the welfare of the animals, and some zoos today have poor environments for the animals. But zoos are undergoing a revolution that is providing better physical and social environments for animals. Progressive zoos are engaged in education, research and conservation, with the aim of maintaining healthy animals that behave in a natural way.

Hediger (1964) was the first person to document biological and ethological principles important for the welfare of captive animals in zoos. By understanding an animal's behaviour, facilities that cater for the animal's needs can be designed.

CATCHING AND MOVING ANIMALS

In Africa, the catching of large wild animals in sufficient numbers for stocking or restocking game farms, reserves and parks is a frequent occurrence. Many zoos today obtain stocks of animals bred in captivity, so the trauma of capture is no longer necessary, although the transport of animals will cause some stress.

Wherever possible, animals that need catching for movement or treatment in Safari Park-type animal reserves should be fed or driven into transporting crates. These methods can be used successfully, particularly for giraffes, elephants, and some of the antelope, as well as for cheetahs and young lions (Tennant and Chipperfield, 1972). The design of the buildings and enclosures in which the animals are kept contributes to the success of these methods. Funnel-shaped rails leading into a crush that the animals are used to are invaluable for loading animals like giraffes and antelope. Doors to houses for big cats should be of the sliding or trap kind to facilitate loading and unloading travelling crates.

Giraffes are usually moved in groups of two to seven in very large crates, and antelopes are usually crated individually. Male animals are never mixed

because of the risk of fighting. Zebra should be crated individually. Many animals (elephants, rhinoceroses, hippopotamuses, lions, etc.) are more easily moved if they are immobilised or tranquillized and a dart gun may be necessary (Tennant and Chipperfield, 1972).

BEHAVIOURAL PRINCIPLES TO CONSIDER FOR THE MANAGEMENT OF CAGED ANIMALS (HEDIGER, 1964; BRAMBELL, 1972)

1. Space and environment
2. Food
3. Social structure and breeding requirements
4. Animal-man relationship
5. The effect of caging on behaviour

SPACE AND ENVIRONMENT

Good management should provide conditions that substitute beneficial factors which influence the species in the wild, and remove factors that have an adverse effect. It is not possible to give an animal an exact replica of its environment but animals have the ability to adapt to a wide range of conditions. For each particular stress factor each animal has a range – the Normal Adaptive Range – which it can tolerate and react to normally. The limits of this range vary for each animal, its age and sex, and are never precise. Outside these limits the animal becomes uncomfortable and at greater extremes it may become so stressed that it is susceptible to disease and injury and is unable to adapt. Death may eventually result.

The goal of a zookeeper is to provide an animal with an environment similar to its natural environment in which it can survive and reproduce. To do this, it is necessary to understand how a species occupies space in a natural state. There are some important questions to answer:

1. What is the geographical range of the species? There are definite limits to this range which may be physical (mountains, rivers, seas), or environmental (temperature, humidity, rainfall). These limits, in turn, determine the type of vegetation the animal inhabits and the food it eats.
2. In what local habitat does the animal live and how does it use its limbs to move about in this habitat?
3. Each species has its own territory or habitat, which supplies particular needs. This habitat may be occupied by more than one species using different parts of the habitat. Sometimes the same part is used by another species but at a different time. Leopards are cats that habitually lie up in trees, while many other carnivores and most ungulates live on the ground. Within the habitat is the living area for a family – and this contains the personal space of each individual. However, the animal is not free but is spatially bound to its territory, which it marks and defends. If a space falls vacant, it is at once

seized by a member of the same species.

The normal sleeping pattern and sleeping place of the species should be known. Some animals sleep in protected places, others sleep in the open. The place of refuge from danger is also important. Some animals flee in danger, others become immobile, some run up a tree, others run underground.

The concept of habitat or territory has important consequences for the correct handling and design of environments for animals in captivity. Their cage or enclosure must be arranged so that the animal accepts it as its personal property and consequently marks it and defends it. Different sized animals have different sized territories and many predatory carnivores have far bigger territories than their prey, often herbivores.

FOOD

On what does the animal feed and how much of its time is spent searching for food? This is an important question. There are three aspects to consider:

1. The animal must have an adequate diet nutritionally to maintain a healthy and thriving condition.
2. The food must be of the correct bulkiness for the digestive system.
3. Food should be presented in such a way that the animal spends as much time eating as it would in the wild.

This question of feeding behaviour presents difficulties. Carnivores normally hunt and kill their prey, but this cannot happen in a zoo as the welfare of the prey is as important as that of the carnivore and also most of the public would find it unacceptable. However, the carnivores, after eating, spend most of their time sleeping, so do not have a problem of filling in time.

On the other hand, plant-eaters present more of a problem as they normally spend much of their day feeding (cows spend about eight hours/day grazing, sheep about 10 hours/day). It is very difficult to provide these animals with a substitute diet that would take them most of their waking hours to consume.

SOCIAL STRUCTURE AND BREEDING REQUIREMENTS

Some animals are solitary, except when the female comes into season. Polar bears and giant pandas are in this group. Some animals form single male bachelor groups, except during the breeding season, and many matriarchal groups consist of the older females and their offspring. In any group of animals a social organisation evolves, often an elaborate hierarchical structure, especially in male groups, involving ritual behavioural displays. It is important to understand the social structure and breeding requirements if the animal is to reproduce in captivity. Many species do not come into breeding condition without the stimulus of introduction to the opposite sex. Cheetahs kept together in pairs do not breed, but when reunited after separation they may do so. Some species rely on the stimulus of daylength to come into season or rut. Others do not need this stimulus and are able to breed throughout the year.

An example of a problem of breeding that was

solved by studying the animal's social structure and behaviour, was seen in a small herd of Father David's deer (Crowcroft, 1978). Two males and three females were in the group, in good health, but not producing young. One summer a group of students studied the social behaviour within the herd. It was eventually concluded that the behaviour of the dominant stag was a major obstacle to breeding. He covered only one female, an elderly hind beyond breeding age. He did not show any interest in the other females, but he would not allow the younger stag to mount any of the females. The following season, by locking up the old stag and letting the younger one remain with the females, a birth was achieved.

MAN-ANIMAL RELATIONSHIP

When an animal is moved from its own environment into captivity, it must reconstruct a whole new world and this is an enormous task. Two types of behaviours emerge:

1. The animal may settle down in its new environment. This is often seen in the undeveloped, still adaptable young wild animal.
2. The animal may never settle down, even if kept in captivity for a long time.

In man's mind, the amount of space at an animal's disposal is often regarded as the most important consideration. It has been mentioned already that a free animal has a specialised and limited territory, so the quality of the space for the animal is more important than the quantity.

When an animal is in captivity there are both primary effects and secondary effects of space restriction. The primary effect is the restriction of movement and the secondary effects include lack of diversion and occupation, no food choice, impossibility of avoiding its own species at will, possible unsuitable differentiation of space, anti-social behaviour.

Then there is the problem of deciding what amount and design of space is necessary for an animal. The flight reaction is the most significant behaviour pattern of the wild animal's life in freedom so it should be of prime concern in captivity. In theory, the smallest cage should have a diameter twice the flight distance (F.D.), e.g.



In this way, an animal could retreat to the centre of the cage away from man, who appears as an enemy. This is often impossible to accommodate so the solution is to reduce the flight distance and so neutralise the animal's desire to escape. This is possible by taming. Zoos now often receive animals bred in captivity, whose flight distances are greatly reduced from their wild ancestors.

EFFECT OF ENCLOSURES ON BEHAVIOUR

It is important to ask the question: Is the behavioural limitation that caging imposes necessarily harmful?

1. One effect of moving an animal from the wild to a cage is to remove it from a rich and varied environment, this may cause it to indulge in one activity to an abnormal degree to compensate for other activities that are no longer possible.
2. Another effect may be over-grooming behaviour of a mother towards a new-born. She may continue to lick after the afterbirth has been removed and the young is clean, so damaging the skin. This may eventually lead to wounding and biting young to death.
3. Caging removes the necessity to hunt for food, but elaborate hunting sequences may still be carried out which are now inappropriate, e.g. wild racoons kill their prey from the river by shaking it. Captive racoons may carry bread to the water bowl and re-enact the killing of the prey.
4. When natural behaviours are frustrated, increased aggression to cage-mates, and sometimes self-directed harm, may result.

These are all important factors when considering the welfare of captive animals.

HOW CAN CONDITIONS BE IMPROVED IN ZOOS?

The layout of many zoos is dramatically changing – gone, or at least going, are the inner-city animal slums, and new zoos are trying to approximate the open condition of the wilds. England's Whipsnade Park became the prototype for open-range exhibits in 1932 and many zoos now house animals in similar conditions to their wild state.

Other suggestions include teaching animals tricks so they can perform, training them to work for food and environmental comforts; all this helps fill in time and provides activity.

More common now is the philosophy that different zoos should become specialist centres for certain groups of animals, rather than every zoo keeping just one example of a species. In this way certain zoos could specialise in rare species both for replenishing their own exhibits and for replenishing wild stocks. These centres could be financed by zoos, conservation societies, and the general public.

There is the question of zoo animals living to old age and suffering various complaints. This is actually unnatural in the wild where survival of the fittest is the rule. The ethical question arising is – should man, who is responsible for lengthening the life of the animal, put the animal painlessly to death in old age or because of

disease? Also, what happens to animals that are reproducing at too great a rate? Over-production may occur in lions, brown bears, the males of some species of antelope, deer and cattle. It is difficult to release them to the wild after they have been bred in captivity; they would be harassed by their own species, lack the skills to hunt and may die of starvation. The ethics of killing these animals due to lack of space should only be a last resort.

The final question asked by many people is: Is it really necessary to keep animals in captivity? Certainly it is necessary in some cases to carry out experiments under laboratory conditions on pest species so it can be determined the most effective and humane means of controlling excess populations of these animals in the wild. But what about zoo animals? Many believe that television provides us with a close-up account of these animals but does it take the place of studying the animal at close quarters?

Progressive zoo management should promote animal behaviour as a scientific field with the study of wild animal medicine and management and perhaps the study of environmental design.

People will probably always go to zoos for recreation to see the animals, so in the process they should be educated also, and it is the behaviour of the animals that provides the education.

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